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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,262	06/27/2001	TeckHock Ng	S01.12-0714/STL 9766	1862

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EXAMINER

LE, DIEU MINH T

ART UNIT	PAPER NUMBER
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2114

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/893,262

Applicant(s)

NG ET AL.

Examiner

Dieu-Minh Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3,5-13 and 15-20 is/are rejected.
7) ☒ Claim(s) 4 and 14 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/27/01.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is response to the communication filed on 02/11/02 in application 09/893,262.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered

therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 5-13, 15-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable of Robinson et al. (US Patent 4,434,487 hereafter referred to as Robinson) in view of Shin (US Patent 6,101,619).

As per claim 1:

Rubinson explicitly teaches:

- a method of retrieving a complete copy of data from a plurality of stored copies of the data, the plurality of stored copies contained in a different set of sectors in a disc storage system [abstract, fig. 1A-B, col. 4, lines 67 through col. 5, line 5 and col. 9, lines 30-45], the method comprising:
- selecting one of the copies from the plurality of stored copies [col. 28, lines 30-34];

- identifying defector sectors in the selected copy [col. 27, lines 44-49];
- locating replacement sectors from the plurality of stored copies other than the selected copy [col. 11, lines 15-45].

Rubinson does not explicitly teach:

- merging sectors from the selected copy with replacement sector defining the complete copy.

However, Rubinson does disclose capability of:

- replacing defective sector in set of sector with spare sectors [col. 1, lines 15-18].

In addition, Shin disclosed capability of:

- a method for improving access performance on track with reallocation sector in a hard disk drive [abstract, col. 1, lines 19-22] comprising:
 - tracking defector sector, accessing re-allocating sectors, and replacing the defector sector within recording medium [col. 7, lines 52 through col. 8, line 8].

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention

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to apply the Shin's method for improving data access operation of a hard disk having tracking defector sector, accessing re-allocating sectors, and replacing the defector sector within recording medium capability in **conjunction** with the Robinson's disk mass storage facility in order to enhance performance of the real-time data accessing and data retrieving to and from a disc storage system. One of ordinary skill in the art would have been motivated to do so to improve the data access to and from memory and to ensure data sector(s) error detected and corrected within data storage medium. In addition, any error sector occurred in data memory computing system can be identified, detected, corrected via data sector replacement capability in providing data high reliability, availability, and flexibility environment which eventually will increase its performance.

As per claim 2:

Rubinson does not explicitly teach:

- a longest sequence of error free sectors..

However, Robinson does disclose capability of:

- sector has 512 or 576 bytes of data[col. 1, lines 15-18].

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Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to realize that 512 or 576 bytes of data within a sector would be a longest sequence of error free sector as claimed by Applicant. This is because by applying these 512 or 576 bytes of data within a sector, defected sector can be easily replaced and a complete copy of data can be formed in ensuring the highest availability memory available for usage. It is further obvious because the longest bytes sequence of error free within memory is the one that would be readily utilized in order to performing data failure (i.e., defector sector) recovery process.

As per claim 3:

Rubinson further explicitly teaches:

- one defective sector from which data is not recoverable [col. 11, lines 47-52].

As per claims 5-6:

Rubinson further explicitly teaches:

- the locating replacement sector step (c) is performed by locating the set of sectors of at least one of the plurality of stored copies other than the selected copy, wherein the locating is restricted to reading sectors

within the set of sectors that can replace defective sectors identified in step (b) [col. 28, lines 40-45];
- the merging sector step (d) is performed in a buffer memory [col. 12, lines 32-40].

In addition, Shin further disclosed capability of:

- the merging sector step (d) is performed in a buffer memory [col. 8, lines 23-25].

As per claims 7-8:

Rubinson further explicitly teaches:

- the plurality of stored copies is all contained on one disc surface [col. 5, lines 54-65];
- individual copies of plurality of stored copies are distributed on different disc surfaces [col. 8, lines 48-64].

In addition, Shin further disclosed capability of:

- the merging sector step (d) is performed in a buffer memory [col. 8, lines 23-25].

As per claims 9-10:

Rubinson further explicitly teaches:

- individual copies of plurality of stored copies are interleaved [fig. 16-18, col. 24, lines 39 through col. 25, lines 16];
- a disc drive storage system implementing the method of claim 1 [abstract, fig. 1A-B, col. 4, lines 67 through col. 5, line 5 and col. 9, lines 30-45].

As per claims 11-13 and 15-19:

Claims 11-13 and 15-19 are similar to claims 1-3 and 5-10. The only minor different is that claim 11 introduces a rotating disc, a transducer, and a controller. However, Robinson explicitly teaches:

- a rotating disc having a disc surface [fig. 1B, col. 7, lines 61-68, col. 13, lines 50-61];
- a transducer head [col. 7, lines 38-45];
- a controller [fig. 1A, col. 5, line 24].

Therefore, these claims are also rejected under the same rationale applied against claims 1-3 and 5-10. In addition, all of the limitations have been noted in the rejection as per claims 1-3 and 5-10.

As per claim 20:

Due to the similarity of claim 20 to claims 11, therefore, these claims are also rejected under the same rationale applied against claim 11. **In addition, all of the limitations have been noted in the rejection as per claim 11.**

5. Claims 4 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. A shortened statutory period for response to this action is set to expired THREE (3) months, ZERO days from the date of this letter. Failure to respond within the period for response will cause the application to be abandoned. 35 U.S.C. 133.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh Le whose telephone number is (703)305-9408. The examiner can normally be reached on Monday - Thursday from 8:30 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can

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be reached on (703)305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**DIEU-MINH THAI LE
PRIMARY EXAMINER
ART UNIT 2114**

DML
6/25/04